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it material support. By the time the bill was passed all appointments had been made for the U. S. Survey; nevertheless, as soon as the facts were made known to Dr. Charles D. Walcott, Director of the U. S. Geological Survey, several men were detailed to run control lines in Sarpy, Cass and Otoe counties, with the courteous and encouraging proffer of an increased force of topographers for the summer of 1902, so as to expedite the work of making maps to serve as bases for the reports of our own survey. This is cooperation in fact, and it should be stated, furthermore, that we have been favored over many of the older states, on the ground that so young a state can be excused for failing to cooperate with the national survey, better than the older and more resourceful states. Already a line of quadrangles, extending the length of the state, has been surveyed topographically, and that portion of the state west of the 103d meridian has been surveyed, and reported upon by Darton. Besides, certain papers on the water resources of the state have been prepared and published by the national survey. Some of the older states which have shown no spirit of cooperation have received fewer favors.

Field work was confined to the eastern counties, where there are the greatest number of quarries, clay pits and exposures. Mr. E. G. Woodruff spent the early part of the summer, chiefly in Sarpy County, filling in gaps left in the maps made by Fisher and Woodruff the previous summer. Mr. G. E. Condra continued the work of collecting Carboniferous fossils, especially the Bryozoa, while the Director of the State Survey made various short collecting trips. All field notes of each worker are put in typewritten form, and are uniformly bound at the end of each season; likewise all maps and photographs. These manuscript volumes, now numbering twelve books of photographs, seven books of notes, and two

books of maps, are deposited with the librarian for safe keeping until such time as they can be published.

The annual Morrill Geological Expedition was rendered self-sustaining during the summer of 1901, by the sale of duplicate specimens the previous year; and one extended trip was made to the famous collecting grounds of Colorado and Wyoming, and numerous short trips to interesting localities in the state, preliminary to future work. Over thirty thousand specimens have been added to the state collections during the past three years.

Specimens, selected from the collections of the Hon. Charles H. Morrill, and from the state geological collection, which are virtually one and the same, are being photographed preparatory to figuring and describing. The material at hand for papers has outrun the publishing fund by several years. However, at the close of the present biennium, a specific publishing fund will not be asked for, for the coming biennium. Hereafter the legislative appropriation will be devoted to the preparation of reports, which will be submitted to the state printer for publication. Supplemental to the state funds for geological work is an annual fund from the University of Nebraska, varying from \$200 to \$500 a year.

ERWIN HINCKLEY BARBOUR.

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SCIENTIFIC BOOKS.

Fact and Fable in Psychology. By JOSEPH JASTROW. New York, Houghton, Mifflin and Co. Pp. xvii+375.

The wild notions that are current about psychic phenomena are for the most part founded on truth. If the air is full of vagaries in this field we must in part at least lay the blame on the strangeness and suggestiveness of the facts themselves. Automatic speech and writing, hypnotism, the strange subsidences and upheavals of memory that go

by the name of 'changes of personality'—these are surely enough to fire the popular imagination to the belief that nothing is too strange to come out of psychology. In this way the whole field unfortunately comes to be represented like those regions on the old charts where no details were given, but only some figures of winged monsters and headless men.

In view of the interest in what has been called the 'borderland' of mind, the present collection of papers by Professor Jastrow is timely and will prove of service. The originals were published in various popular and scientific journals, but have in considerable part been rewritten for this volume. Taken as a whole they work in well together and contribute to a single end. His general aim is both negative and positive—negative in that he clips the wings of the soarers, the uncritical enthusiasts over mental phenomena; positive in that he attempts both to stimulate a healthy interest in many strange and interesting phenomena that do not immediately suggest the occult, as well as to point out psychologically the actual causes which lead here and elsewhere to a belief in the occult. While the spiritualists and psychical researchers are wandering and wondering in their chosen fields, Professor Jastrow has a specialist's eye on the mental machinery of these borderlanders themselves, and finds them in their way quite as instructive and as absorbing as they in their turn find the mediums and *Poltergeister*. Psychology thus stands to win in any case; if there is 'nothing in' psychical research, there is at least a great deal in the researchers.

The author points out the immense difference between 'psychical research' and psychology, especially as regards the interest and temper of the persons engaged in each. He cordially admits that some few researchers are actuated by a true scientific interest and are guided by a critical sense. The rank and file, however, are interested only in the discovery of evidences for something supernormal. In as far as the facts are explicable by familiar natural law, in so far there is for these persons 'nothing in them.' But the

psychologist becomes interested just at the point where the other's attention flags. His very aim is to arrive, if possible, at a natural and normal explanation of the phenomena in question. Whatever good qualities may be hidden within the psychical research movement, Professor Jastrow believes that its sins are more than an offset to its virtues; it has withdrawn energy from fruitful fields and has done much harm to scientific psychology. In this judgment the author may be right; but so far as psychology is concerned, it is perhaps too soon to say what the real and lasting effect of psychical research will be. On the whole, the strength which the movement has developed has probably been drawn very little from psychology, just because, as Professor Jastrow has so ably pointed out, the temper and interests of the two classes of persons are so fundamentally opposed. Possibly by a kind of induction, or after the manner of antipodal tidal waves, it has positively helped toward a study of commonplace and normal mental phenomena.

As regards the special question of telepathy, the author feels that the believers here do not take sufficient account of the extent to which communication is possible through the ordinary means of sense, while the channels of communication themselves remain unrecognized; nor do they take sufficient account of mere chance coincidence. The hypothesis of telepathy, as usually understood, is scientifically repugnant because it does not keep within the bounds of psycho-physical causation. If modified to escape this objection it might become a legitimate theory, although sadly in need of facts to support it. The evidence seems to him a "conglomerate in which imperfectly recognized modes of sense-action, hyperæsthesia and hysteria, fraud, conscious and unconscious, chance, collusion, similarity of mental processes, and expectant interest in presentments and a belief in their significance, nervousness and ill-health, illusions of memory, hallucinations, suggestion, contagion, and other elements enter into the composition; while defective observation, falsification of memory, forgetfulness of details, bias and prepossessions, suggestion from others, lack of

training, and of a proper investigative temperament, further invalidate and confuse the records of what is supposed to have been observed" (p. 103).

The chapter on 'The Psychology of Spiritualism' is a good tonic for any one who may feel himself weakening in his opposition to the spiritistic hypothesis of certain trance and trick phenomena. The psychological notions which lead to the belief, as well as the difficulty of obtaining reliable evidence in its favor, are well told in this and the preceding essay on the 'Psychology of Deception.' The fact that a witness is a 'scientist' does not free him from the usual fallacies of the senses and of false inference; the testimony of such persons often breaks down just at the vital point; witness the celebrated quartette of Zöllner, Fechner, Scheibner and Weber, who were so unmercifully hoodwinked by the charlatan Slade.

This trend toward the occult, as expressed in the forms mentioned, as well as in theosophy and 'Christian science,' is due to the impulse always present in the race to look at the facts of nature in an intensely personal way. Other forms of this same attitude toward experience are found in ancient divination, in astrology, in the magic and medicine-man practices of savage life. To view the facts in their historical and anthropological perspective is an excellent check on one-sidedness here and elsewhere. With this especial aim we have two excellent studies, one of which traces the history of hypnotism through the vagaries of animal magnetism and mesmerism until the kernel of truth becomes fairly divested of its mystical wrappings, through the work of Braid; the other, with the title of 'The Natural History of Analogy,' shows the development of the belief that a person may be influenced by performing some act upon an object closely associated with him—his form in wax, his footprint, his sword, his name, and so on.

But not alone in such perspective would the author find the best antidote to the pernicious tendencies toward the occult, but also in a wholesome interest in the genuine and profitable problems of nature and of life. A

considerable portion of the book is given to a study of certain mental phenomena which are not only important in themselves, but have a direct bearing on the problems discussed in the papers mentioned above. The readiness of the mind to supplement and modify its sense-impressions, so as to bring them into accord with its own prepossessions is shown by a number of simple illusions. But not alone is the power of observation thus affected by one's mental attitude, but the power of action is influenced as well. Numerous tracings of hand-movements by means of Professor Jastrow's well-known 'automatograph' are introduced to show the involuntary effect of different mental states upon the motor apparatus—interesting and suggestive in connection with 'mind-reading,' 'telepathy' and the like. On a larger scale a capital instance of the power of suggestion and social 'atmosphere' is given from certain experiences in the Government Census Office in 1890. The tabulating machines, when first introduced, caused enormous wear and tear upon the clerks who attempted to master the complicated system of symbols. But when once a considerable body of capable workers with these machines (and thus a more favorable social *milieu*) had become established, raw clerks could now be put among them, and in a few days without any appreciable nervous strain attained a speed and proficiency which the pioneer clerks had acquired only with difficulty after weeks. The volume closes with a study of the dreams of the blind, in which the author brings out the existence of a critical period at the age of from five to seven years. If blindness occurs before this, the faculty of visual dreaming is gradually lost; while the occurrence of blindness after the critical period has no serious effect upon the visual dream-life. This fact, it turns out, had already been discovered by Heermann as early as 1838; but Jastrow's rediscovery was quite independent. There is included in this chapter an account by Helen Keller of her dreams, told with the charm that always marks her writing.

It is evident that the spirit and matter of the volume seem to the present writer commendable. Beneath an easy and pliant style,

the essays are rigid, and perhaps a trifle fierce, toward the deluded believers in the occult; these will hardly feel that they are being gently shown the error of their way. And yet Professor Jastrow's opposition is of an entirely different order from the mere pooh-poohing and scientific cold shoulders to which the borderlanders have been so often treated and of which they bitterly complain. Their views are here dealt with by one who has taken the trouble to study the matters in question, who is equipped with technical training in psychology, and who pronounces judgment with discrimination, admitting many of the facts adduced, but pointing out to what different consequences they lead from what the occultists suppose.

In attributing occultism to the impulse to interpret experience personally—to see a direct significance in whatever occurs—the author is doubtless correct in the main. It would perhaps have been still more correct, however, to say that the trouble lies in seeking a *short-cut* personal interpretation, in seeking an exclusive and private significance in phenomena, and not in a personal interpretation *per se*. For many a scientist tenaciously holds to natural law and at the same time, without throwing logic overboard, interprets the system of nature personally. But he does it in a large way and by harmonizing mechanism with personal will, rather than by seeing them antagonistic. Professor Jastrow, while not explicitly saying so, too often seems to imply that natural causation and personal significance are incompatible, and that the occultist has seized the wrong term of the pair. The occultist is really in the bonds of the same error that pervades much of our science—namely, that the mechanical view of nature excludes any spiritual significance from it; and while some scientists hold to one side and give up the other, the occultist does the same, with merely an exchange of terms. One-sided science thus is one of the inducements to a one-sided occultism, and the cure is to be found in a larger view that will do justice both to our scientific conviction that things are orderly and systematic, as well as to the

equally deep and respectable conviction that this order and system is pervaded with personal purpose and personal significance.

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Altersklassen und Männerbunde, Eine Darstellung der Grundformen der Gesellschaft.

Von HEINRICH SCHURTZ. Mit einer Verbreitungskart. Berlin. 1902. 8vo. Pp. 458.

This massive volume is devoted to the thesis that the true beginning of those artificialities of human life that we call society is not to be sought in the family, the sexual union, the Mutterrecht, which is an exaltation of naturism; but in purely voluntary aggregations of males, called men's associations, and the classification of these by age, forming the society of the ancients. The author confesses that his attention was first called to the subject by the wide distribution and different forms of bachelors' quarters among the less cultured peoples of the earth. So many necessary acts of life require cooperation that artificial social structures of more and more complicated character grow out of the very nature of the case. War, so far from being an exception to the rule, proves it, since its struggles occasion more perfect and solid unions. It is well known and has often been commented on that, in America, while children were generally named for the mother, there was going on in many tribes a transition to father-right. A curious modern phase of this assertion of man's rights is a rôle played by the profession of interpreters, who are men of almost unlimited sway in the tribes having business in Washington City.

Doctor Schurtz in his introductory chapter prepares the way for the detailed study by explaining the natural and artificial analysis of society—that dependent on sex life and that based on purely interested and cultural grounds. The classification by age, whether allied or not with the question of blood kinship, is the earliest form of artificial grouping. This with its curb on the life of promiscuity is worked out in the second chapter. The author goes into the fullest detail with the description of the men's houses in all parts of the world.